

**Remarks**

Examiner Kianni is thanked for the thorough Office Action.

**Withdrawal Of Claims 58 To 74 From Consideration**

Applicant acknowledges the withdrawal of claims 58 to 74 from consideration as being directed to a non-elected invention. Please cancel non-elected claim 58 to 74. Applicant reserves the right to prosecute these claims a divisional patent application at a later date.

**In the Claims**

Claim 1 has been amended so as to underline the inserted words 'of the' immediately after the newly inserted words 'exposed second portion' in line 10 which was inadvertently not underlined in the previous Amendment. This amendment does not narrow the scope of the claims. The word -- and -- has been added at the end of line 13, -- a) -- and -- b) -- have been added at the beginning of lines 15 and 17, the semicolon has been deleted at the end of lines 17 and 19 and the phrase "to form the substantially planar surface of the optical waveguide device" has been eliminated. These amendments have been added to clarify claim 1 and do not narrow the scope of claim 1.

It is noted that claims 17 to 57 were canceled in the response to the 10/31/2005 Office Action with the right being reserved to prosecute these claims in a divisional patent application filed at a later date.

As note above, claims 58 to 74 have been canceled with the right being reserved to prosecute these claims in a divisional patent application filed at a later date.

The claims have not been otherwise amended.

### Claim Rejections

#### The Rejection Of Claims 1 And 12 (1 To 16) Under 35 U.S.C. §112, Second Paragraph, as Being Indefinite for Failing to Particularly Point Out and Distinctly Claim the Subject Matter Which Applicant Regards as the Invention

The rejection of claims 1 and 12 (1 to 16) under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention is acknowledged.

1. "Claim 1 recites the limitation 'the exposed second portion' in lines 10 and 15.

There is insufficient antecedent basis for such limitation in the claim.

Correction is required."

Applicants respectfully disagree with this rejection. The full limitation in lines 10 and 15 is "the exposed second portion of the higher cladding portion" and lines 8 and 9 recite "leaving a second portion of the higher cladding portion exposed;" which therefore forms 'an exposed second portion of the higher cladding portion' so thus there is sufficient antecedent basis for the subject limitation.

2. "The limitation step 'to form a planarized cladding portion coplanar with the unpper surface of the waveguide core portion; to form the substantially planar surface of an optical waveguide device' are ambiguous and undefined limitations as what these steps are actually accomplishing not positively cited limitation as Claim 1 is ambiguous." (sic)

Claim 1 has been amended to deleted the phrase "to form the substantially planar surface of the optical waveguide device" which is believed to overcome this rejection. Otherwise, as best as understood, Applicants respectfully disagree with this rejection. Claim 1 is not ambiguous as is now presented as "...to form a planarized cladding portion coplanar with the upper surface of the waveguide core

portion.” refers to the planarization sub-steps now labeled “a)” and “b)” (see 3b below).

3. “The limitation step ‘planarizing’ in line 14<sup>th</sup> of claim 1 is undefined. The applicant must stipulate what is being planarized and whether it comprises or it includes or consists ‘the step of:’ that would related to the subsequent sub-steps.”

Claim 1 has been amended to include the lettering “a)” and “b)” before the sub-steps to which the ‘planarizing’ applies. These amendments do not narrow the scope of claim 1 and have been made to clarify claim 1. Applicants believe these amendments overcome this rejection.

4. “The semicolon in line 16 of claim 1 has made the step ‘the lower cladding portion’ in line 17, undefined/ambiguous. Otherwise, if the limitation of line 17 is an independent step then it needs to be defined as what the actual step is or accomplishing. Correction is required.

The amendment of claim 1 by: (1) adding “a)” and “b)” before the sub-steps; (2) adding -- and -- after “cladding portion;” at line 13 and (3) deleting the semicolon at the end of line 17 are believed to overcome this rejection. These amendments do not narrow the scope of claim 1 and are made to clarify claim 1.

The last step of claim 1 begins at “planarizing:” and ends at “waveguide core portion;” at line 19. Further, the use of a colon at the end of line 14 then permits the use of semicolons in lines 16 and 17 for each sub-step thereof.

5. “The semicolon in line 20 of claim 1 has made the step ‘to form the substantially planar surface of an optical waveguide device’ in line 21, undefined/ambiguous. Otherwise, if the limitation of line 21 is an independent step then it needs to be defined as what the actual step is or accomplishing. Correction is required.”

Claim 1 has been amended to phrase “to form the substantially planar surface of the optical waveguide device” has been eliminated to simplify claim 1. This amendment does not narrow the scope of claim 1.

Applicants do not understand what 35 U.S.C. §112, second paragraph, rejection applies to claim 12 as the Examiner has not stated any such rejection as to claim 12.

**The Rejection Of Claims 1 To 4 And 6 to 16 Under 35 U.S.C. §103(a) as Being Unpatentable Over Davids et al. (U.S. Patent Application Publication No. 2003/0161571 A1)**

The rejection of claims 1 to 4 and 6 to 16 under 35 U.S.C. §103(a) as being unpatentable over Davids et al. (U.S. Patent Application Publication No. 2003/0161571 A1) (the '571 Davids Pub.) is acknowledged.

Applicants' wish to briefly point up the claimed features of their invention which are believed to be not shown nor obvious from the teachings of known references in this field. The claims all clearly define (see claim 1, for example) a method of forming a substantially planar surface of an optical waveguide device, comprising the steps:

(1) forming at least one waveguide core portion within at least one cladding portion; the waveguide core portion having an upper surface; the cladding portion having a higher portion over at least the waveguide core portion and a lower portion;

(2) forming a patterned sacrificial portion over the lower cladding portion and a portion of the higher cladding portion, leaving a second portion of the higher cladding portion exposed;

(3) removing at least a portion of the exposed second portion of the higher cladding portion by a selective removal process selective to the patterned sacrificial portion leaving a remnant of the exposed second portion of the higher cladding portion; and

(4) planarizing:

(a) the remnant of the exposed second portion of the higher cladding portion over the waveguide core portion; and

(b) the lower cladding portion  
to form a planarized cladding portion coplanar with the upper surface of the waveguide core portion.

However, inter alia, the '571 Davids Publication does not disclose the claimed limitations of:

"...(2) forming a patterned sacrificial portion over the lower cladding portion and a portion of the higher cladding portion, leaving a second portion of the higher cladding portion exposed;

"... (3) removing at least a portion of the exposed second portion of the higher cladding portion by a selective removal process selective to the patterned sacrificial portion *leaving a remnant of the exposed second portion of the higher cladding portion*;

(4) planarizing:

(a) *the remnant of the exposed second portion of the higher cladding portion over the waveguide core portion*; and

(b) the lower cladding portion; ... " (emphasis added)

Instead, the Examiner cites paragraphs 0015 and 0025 of Davids which clearly discloses *at least two* "sacrificial layers" which the Applicants, as best as

can be discerned, refers to: (1) "a photoresist layer (not shown) is patterned over intermediate cladding layer 24" (see Fig. 5A) [paragraph 0015]; and (2) "a photoresist layer (not shown) is deposited and patterned on a top surface 52 of top cladding layer 50." (see Fig. 10A) [paragraph 0025]. These clearly are *two separate and distinct* "sacrificial layers" and not "a patterned sacrificial portion over the lower cladding portion and a portion of the higher cladding portion, leaving a second portion of the higher cladding portion exposed" (emphasis added) as instantly claimed.

Applicants repeat their prior arguments, i.e., as noted by the Examiner, Davids discloses at paragraph [0024] and shown in Figs. 9A and 9B, "... top cladding layer 50 is deposited over waveguide 32...[and] is planarized ... resulting in a top cladding layer 50 thickness  $T_6$ ..." and *then* in paragraph [0025] "... [p]ortions of top cladding layer 50 exposed by the openings defined by the photoresist layer [not shown] are removed...[forming] first contact hole 60 over emitter 34 and second contact hole 62 over collector 36." The Examiner clearly defines the patterned top cladding layer 50 having holes 60, 62 (Figs. 10A, 10B) (paragraph [0025]) as being the instantly claimed "remnant of the exposed second portion of the higher cladding portion..." and improperly temporally uses the *previous* planarization of the *non*-remnant (non-patterned) top cladding layer 50 (Figs. 9A, 9B) ( paragraph [0024]) as the instantly claimed "planarizing (a) the remnant of the exposed second portion of the higher cladding portion



over the waveguide core portion...". Simply put, one may not planarize a remnant until that remnant is formed. Davids discloses planarization of a non-remnant portion (cladding layer 50) (paragraph [0024]) and then forming the remnant portion (cladding layer 50 having first and second holes 60, 62) (paragraph [0025]).

Thus, independent claim 1 distinguish over the '571 Davids Pub. under §103(a) for the above reasoning and further because, inter alia: the prior art lack a suggestion that the Davids reference should be modified in a manner required to meet the claims; the Examiner misunderstood the Davids reference; the invention is contrary to the teaching of the prior art – that is, the invention goes against the grain of what the prior art teaches; the Examiner has not presented a convincing line of reasoning as to why the claimed subject matter as a whole, including its differences over the prior art, would have been obvious; and the Davids reference teaches away from the instantly claimed invention.

Claims 2 to 16 depend from independent claim 1 and are believed to distinguish over the combination for the reasons previously cited.

**Allowable subject matter**

The objection to claim 5 as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims is acknowledged. Applicant requests that the rewriting of allowable claim 5 be held in abeyance pending the final determination of the allowability of amended parent claim 1.

Therefore claims 1 to 16 are submitted to be allowable over the cited references and reconsideration and allowance are respectfully solicited.

### CONCLUSION

In conclusion, reconsideration and withdrawal of the rejections are respectively requested. Allowance of all claims is requested. Issuance of the application is requested.

It is requested that the Examiner telephone Stephen G. Stanton, Esq. (#35,690) at (610) 296 - 5194 or the undersigned attorney/George Saile, Esq. (#19,572) at (845) 452 - 5863 if the Examiner has any questions or issues that may be resolved to expedite prosecution and place this Application in condition for Allowance.

Respectively submitted,



Stephen B. Ackerman  
Reg. No. 37,761